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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/994,698

11/28/2001

Kazuhiko Ikeuchi

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10/31/2003

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EXAMINER

PEUGH, BRIAN R

ART UNIT

PAPER NUMBER

2187

DATE MAILED: 10/31/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,698

Applicant(s)

IKEUCHI ET AL.

Examiner

Brian R. Peugh

Art Unit

2187

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on November 28, 2001 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the Examiner. The Prior Art Information List found on the IDS, however, has not been considered, as it is not a proper reference.

Drawings

The drawings are objected to because in Fig. 2, item (23) includes the misspelled word "Manegement". Also, Fig. 9 includes the misspelled "FORW" in the "YES" branch after step S25. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 2-4 and 7-10 are objected to because of the following informalities:

Regarding claim 2:

The Examiner believes that the recitation of "one management module" of lines 2 and 4 should be replaced with --one of said plurality of management modules--, and that

the recitation of "another management module" of line 2 should be replaced with – another of said plurality of management modules-- in order to facilitate a clear understanding of the claim limitations.

Regarding claim 3:

The Examiner believes that the end of line 4 may require the phrase –of said plurality of management modules— in order to link the "a management module" limitation of line 4 with "a plurality of management modules" of line 12 in claim 1.

Regarding claim 4:

The Examiner believes that "the" in line 3 should be replaced with –a-- in order to facilitate proper antecedent basis.

Regarding claim 7:

The Examiner believes that "the" in line 21 should be replaced with –a-- in order to facilitate proper antecedent basis.

Regarding claim 10:

The Examiner believes that "the" in line 3 should be replaced with –a-- in order to facilitate proper antecedent basis.

Claims 8, 9, 11 and 12 are objected to as being dependent upon a previously objected claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 3, and 7-9 recite the limitation "in-charge of". It is unclear to the Examiner as to how this phrase is to be interpreted. For example, claim 1 recites "a plurality of physical disk groups which are in-charge of difference logical volumes" (lines 5-6), which appears to indicate that the phrase "in-charge of" corresponds to the logical volumes being a part of the physical disk groups. Claim 1 further recites "a plurality of management modules which are in-charge of plurality of said redundant groups", where in this instance "in-charge of" appears to indicate that the management modules control the plurality of redundant groups, as if the management modules are a form of memory controller. Claim 1 contains yet another instance of "in-charge of" in lines 22-23, here in the form of "a plurality of said management table for being in-charge of said plurality of redundant groups". This claim limitation appears to indicate that the management

tables contain data associated with the redundant groups, but that the tables do not function as a controller or are a part of the redundant groups.

Claim 3 recites "said management table of the physical disk group which one management module is in-charge of" (lines 2-4). This reference of "in-charge of" appears to indicate that the management module controls the management table and how it is used, possibly in a form similar to that of the second instance of "in-charge of" in claim 1 as recited above. Claim 7 recites "an access request area of a plurality of physical disk groups which are in-charge of different logical volumes" (lines 2-3). Here the use of "in-charge of" is similar to that of the first instance of "in-charge of" of claim 1, recited above. Claim 8 recites "said physical disk group which one logical format management module is in-charged of", while claim 9 includes a reference to "in-charge of" in the form of "the management table of the physical disk group which one logical format management module is in-charge of" (lines 2-4). Even with the misspelled "in-charged" of claim 8, the references seems to indicate that the logical format management module functions as a controller of the physical disk group.

Claim 2 recites a similar limitation, that of "the physical disk group charged by said one management module". There is insufficient antecedent basis for this limitation in the claim. Neither claim 2 nor the parent claim 1 recites a "charged", or "in-charge of", limitation between a physical disk group and that of a management module.

After consulting Applicant's Specification, the Examiner is still unclear as to how to correctly interpret the claimed subject matter set forth above and encourages the Applicant to amend the claims to clearly recite the intended subject matter.

Claim 1 recites the limitation "a plurality of lower layer modules for accessing said physical disk according to the processing request of said management module" in lines 18-20. More specifically, claim 1 recites the limitation "said physical disk" in lines 18-19. There is insufficient antecedent basis for this limitation in the claim. A "plurality of physical disks" had been previously recited in lines 5-6. It is unclear to the Examiner whether the plurality of lower layer modules respectively accesses the plurality of physical disks, or whether the plurality of lower layer modules accesses only one of the disks, where the accessing is done according to the "processing request" (logical format request).

Claim 1 recites the limitation "said management table" on page 32, line 27 – page 33, line 1. Previously the claim had recited "a plurality of management modules ... issuing a logical format request for each area of said logical volume by referring to a *management table*" (emphasis added) (lines 12-15), as well as "wherein each said management module has: *a plurality of said management table* for being in-charge of said plurality of redundant groups"(emphasis added) (lines 21-23). It is unclear to the Examiner whether there is a single management table for which all logical format requests are referred to, or whether each logical format request for each volume is attributed to one of the plurality of said management tables.

Claim 1 recites the limitation "plurality of said redundant groups" in line 13. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the

Examiner whether the “plurality of said redundant groups” in line 13 corresponds to the “redundant groups” of line 11.

Claim 1 recites the limitation “each area” in line 14. It is unclear to the Examiner whether the “each area” of line 14 corresponds to the “access request area” in lines 1-2, or another, separate area of the logical volume.

Claim 1 recites the limitation “said logical volume” in line 14. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the “said logical volume” of line 14 corresponds to the “logical volumes” in line 2.

Claim 1 recites the limitation “the processing request” in line 19. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether “the processing request” of line 19 corresponds to the “logical format request” in line 14. Also, it is unclear to the Examiner whether “the logical format processing” of line 16 corresponds to the “logical format request” in line 14.

Claim 1 recites the limitation “said management module” in lines 19-20. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the recitation of “said management module” of lines 19-20 corresponds to the recitation of “a plurality of management modules” found in line 12.

Claim 1 recites the limitation "all the access request areas" in lines 26-27. There is insufficient antecedent basis for this limitation in the claim. Only a single access area, in the form of "an access request area", had been previously recited in lines 4-5.

Claim 1 recites the limitation "said disk access" in lines 1-2 of page 33. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the recitation of "said disk access", found in lines 1-2 of page 33, corresponds to "a disk access request" in line 6.

Claim 1 recites the limitation "said lower layer module" in lines 2 and 7-8 of page 33. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the two recitations of "said lower layer module", found in lines 2 and 7-8 of page 33, correspond to the previously recited "a plurality of lower layer modules", found in line 18.

Claim 2 recites the limitation "the logical format processing" in line 14. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether "the logical format processing" of line 3 corresponds to the "logical format request" in line 14 of claim 1.

Claim 3 recites the limitation "said one logical format management module" in line 5. There is insufficient antecedent basis for this limitation in the claim. A "one logical format management module" had not been previously recited.

Claim 3 recites the limitation "one management module" in lines 3-4 and 6-7. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the recitation of "one management module" of lines 3-4 and 6-7 corresponds to "a plurality of management modules" in line 12 of claim 1.

Claim 3 recites the limitation "another management module" in line 6. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the recitation of "another management module" in line 6 corresponds to the "a plurality of management modules" in line 12 of claim 1.

Claim 6 recites the limitation "logical format processing request " in line 4. It is unclear to the Examiner whether the "logical format processing request" of line 4 corresponds to the "logical format request" in line 14 of claim 1.

Claim 6 recites the limitation "said lower layer module " in lines 4-5 and 8. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the recitation of "said lower layer module", found in lines 4-5 and 8,

corresponds to the previously recited "a plurality of lower layer modules", found in line 18 of claim 1.

Claim 7 recites the limitation "said logical volume" in lines 8 and 10. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether "said logical volume" refers to one of "different logical volumes" (line 3) or "one logical volume" (lines 3-4). ✓

Claim 7 recites the limitation "said physical disk" in line 15. There is insufficient antecedent basis for this limitation in the claim. A "plurality of physical disks" had been previously recited in lines 4-5.

Claim 7 recites the limitation "the logical format processing" and "said logical format processing" in lines 9-10 and 21-22, respectively. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether "the logical format processing" and "said logical format processing" in lines 9-10 and 21-22, respectively, corresponds to the "logical format request" in line 7.

Claim 7 recites the limitation "said logical format processing request" in line 17. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the "said logical format processing request" of line 17 corresponds to the "logical format request" in line 14.

Claim 7 recites the limitation "said disk access" in line 1 of page 35. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the recitation of "said disk access", found in line 1 of page 35, corresponds to "a disk access request" in lines 5-6.

Claim 8 recites the limitation "said physical disk group" in line 3. There is insufficient antecedent basis for this limitation in the claim. A "plurality of physical disks" had been previously recited in line 2 of parent claim 7.

Claim 9 recites the limitation "the physical disk group" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. A "plurality of physical disks" had been previously recited in line 2 of parent claim 7.

Claim 12 recites the limitation "said logical format processing request" in line 4. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the "said logical format processing request" of line 4 corresponds to the "logical format request" in line 7 of claim 7.

Claim 12 recites the limitation "said logical format" in line 6. There is insufficient antecedent basis for this limitation in the claim. It is unclear to the Examiner whether the "said logical format" of line 6 corresponds to the "logical format request" in line 7 of claim 7.

Claims 4, 5, 10, and 11 are rejected as being dependent upon a previously rejected claim.

Conclusion


Due to the ambiguity of the claim language and difficulty in discerning the claimed invention, the Examiner has been unable to perform a proper search and cite related prior art and prior art rejections. The Applicant is encouraged to make the necessary changes in order to remove the claim objections and rejections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Peugh whose telephone number is 703-306-5843. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm. The examiner can also be reached on alternate Friday's from 7:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks, can be reached on (703) 308-1756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

October 20, 2003


Brian R. Peugh
Patent Examiner
Art Unit 2187